

TECHNICAL DEPT.

# AVIATION

*The Oldest American Aeronautical Magazine*

MARCH 5, 1928,

Issued Weekly

PRICE 20 CENTS



A Navy Vought observation plane leaving the catapult of the U.S.S. Maryland

VOLUME  
XXIV

NUMBER  
10

## *Special Features*

The International F-18  
Lima, Peru, to Para, Brazil  
The Floco Aviation Engine

AVIATION PUBLISHING CORPORATION  
250 WEST 57 STREET, NEW YORK

Publication Office, Highland, N. Y. Entered as Second-Class Matter, Nov. 22, 1920, at the Post Office, at Highland, N. Y. under Act of March 3, 1879.

TOLEDO  
PUBLIC  
LIBRARY

# 3,203,000 MILES ... 28,175 HOURS ... of reliability and pilot satisfaction

... IS THE official record of flying done during the fiscal year 1927, in Vought AIRPLANES in the United States, the Peruvian and the Cuban Air Services.

¶ This is more air mileage and more hours than accomplished in any other type of airplane of which accurate record is available.

¶ It is more miles and more hours than recorded by any of the air transport and commercial lines of the world.

## VOUGHT AIRPLANES



# THROW AWAY YOUR CHOCKS!

NO LONGER is it necessary for two strong men to pull away the chocks at the "psychological moment" of take-off. The Fairchild "all-purpose" monoplane is the only plane designed with two chock, self-emergizing, internal expanding brakes as an integral part, making it possible for the pilot even to run his engine full throttle without moving his ship or tilting forward.

A unique method of operation enables the pilot to depress one brake pedal independent of the other and whirl his machine around on its own axis. A serious problem of design was overcome by placing the landing gear farther forward. While looking with the wheels locked it is easy to appreciate the terrible twisting force a "plane weighing 3,600 pounds and traveling at the rate of 50 miles an hour would have. A new landing gear was designed

which weighs only 186 pounds but will take a maximum stress of 18,000 pounds. Likewise a new and exceptionally strong tail skid was perfected to take the enormous stress at the rear of the fuselage.

Experienced pilots agree that with a Fairchild "plane it is possible to land and stop in one-third the space required by all other "planes. The excellence of the brakes on Fairchild "all-purpose" monoplanes, which are completely protected from grit and moisture, being enclosed inside the aluminum disc wheels, is only another indication of the attention to details manifested in every part of the construction of this "plane.

Further particulars and a trial trip in an "all-purpose" Fairchild "plane may be arranged with an authorized Fairchild dealer. Fairchild Airplane Manufacturing Corporation, Farmingdale, N. Y.

SOLE AGENTS OF FAIRCHILD AVIATION CORPORATION

# FAIRCHILD





# "Flying the mail" . . . or transporting passengers



Produce Machine shows our "Seesall" goggles, which bring between New York and Alaska.

**T**HE transition of aviation from the hazardous experiments of early years to the routine safety of today, has been speeded by such research as Goodrich has conducted.

A pioneer then—with sound faith in the future of aviation—this Company is today receiving its rewards in tangible form. On the wheels of every type of plane—on the gossamer of water planes—and in every other place where rubber can safeguard performance or add to comfort and security—you find Goodrich Silvertowns and other Goodrich Rubber products in airplane service. And new uses, new applications of rubber in aviation, are being pioneered, developed, perfected, continuously in the Goodrich laboratories and factories.

Aircraft Development Department  
THE B. F. GOODRICH RUBBER COMPANY • Akron, Ohio



The Superior Folding P. V. L. glider airplane, now in production, part of its equipment in providing secure safety in passenger service.

# Goodrich

## Rubber for Airplanes



## "SEESALL"

CREATED BY THE MAKERS OF "DUNGLAS"

The Goggle You Forget to Take Off — endorsed by 103 well-known pilots

**N**OW aviators can have a goggle which does not cause headaches or nervousness, which gives 100% vision in all directions, and feels light as a feather.

103 commercial and mail pilots ordered "Seesall" goggles for their personal use before we placed it on the market for general sale. Wear this goggle two or three minutes and you forget you have it on. The single ply pneumatic rubber mask hugs the face without discomforting pressure—and yet there is not the slightest air leak anywhere. Scientific indirect ventilation prevents watering of the eyes and fogging glasses. Although "Seesall" is made by the foremost

manufacturers of non-shatterable aviation goggles, "Seesall" is made with plain curved glass of excellent optical clarity. With "Seesall" you can see as clearly as if you wore no goggles at all—and if desired you can wear "Seesall" over your own spectacles.

There are "Seesall" dealers most everywhere. But if you cannot find one, mail us your check for \$15.00 and you will get your Dunlop "Seesall" prepared by experts made in a handsome metal case. If it is not the most comfortable and most perfect goggle you ever wore we will cheerfully refund your money. Insistent the genuine "Seesall" created only by Dunlop.



"DUNGLAS" \$7.50 per pair  
Single Rubber Sealing



"SEESALL" \$15.00 per pair

Other Dunlop goggles as low as \$1.75  
And 1/2 cent credit



"DUNGLAS" \$7.50 per pair  
Water Guards \$1.00 per pair  
Dunlop \$1.00 (There are 12)  
But you must check them  
\$1.00 per pair

Sole Selling Agents

BECK DISTRIBUTING CORP.



70 EAST 131st STREET, NEW YORK

Wholesale representatives of the Beck Distributing Corp. and the M. M. M. Co., Inc., Main Building, San Francisco, Cal.



Fairchild Cabin Plane (Wasp)  
as used by the Canadian Transcontinental Airways

## Reserve Power

RESERVE POWER in all aircraft is of great importance, and a necessity in commercial aviation. It provides a greater factor of safety, increased dependability, and longer life. An important step in American commercial aviation of 1928 will be recognition of the factor of RESERVE POWER.



"WASP" engines in the Fairchild monoplanes of the Canadian Transcontinental Airways provide the necessary RESERVE POWER. Quick take-off, with the combination skis and pontoons with which this ship is equipped, is vitally essential in the transportation of the Air Mail from the mouth of the St. Lawrence River to Quebec.

THE  
**PRATT & WHITNEY AIRCRAFT CO.**  
HARTFORD CONNECTICUT

**DEPENDABLE ENGINES**



## Growth—

Every month shows a regular and substantial increase in the volume of air mail carried between the larger cities. This year nine more air routes will be added to the eighteen routes already in operation, making twenty-seven in all.

Furthermore, along all airmail routes the Department of Commerce has prepared emergency fields, and along all airways over which night flying is done the department has installed beacons at regular intervals.

In keeping with these improvements, the Standard Oil Company (Indiana) has marked towns and city names on the roofs of 1,800 of its warehouses located along military and commercial airways. At these warehouses, and at practically all airports in the ten states in which the company operates, there is maintained a supply of

## Stanolind AVIATION Gasoline and Stanolind AERO Oil

to meet the increasing demand for these two aviation products. The purity and uniformity of these brands have been proved over long periods of air mail flying and in the exacting requirements of air races. Today they are preferred by the majority of Middle Western air transport companies and their pilots.

Our Aviation Manual, containing names and locations of all airports and landing fields in the ten states in which the company operates, together with other data helpful to every aviator, is being revised to date. This booklet will soon be off the press. It may well be mailed FREE if you address your request care of Aviation Department.

**STANDARD OIL COMPANY**

(INDIANA)

General Offices: 910 S. Michigan Avenue

CHICAGO, ILLINOIS

# SIKORSKY

## Achievements in 1927



SIKORSKY Bombarment Plane Type S-37B



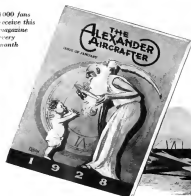
SIKORSKY Two-engined 18 Passenger Commercial Plane Type S-37



SIKORSKY Two-engined Amphibian 8 Passenger Type S-16

**Sikorsky Manufacturing Corporation**  
College Point, L. I., N. Y.

1000 fans  
receive this  
magazine  
every  
month



*The Alexander magazine is the industry's — it helps the plane owner*

## Creating Air-mindedness . . Aviation's Favorite

*and acquainting the public with Eaglerock*

**A**n Eaglerock purchaser receives more than an airplane for his money. He obtains the services of a great organization prepared and equipped to assist him in making his ship pay a profit.

He buys the good will and popularity of a product made famous to the public through a remarkable performance record, 10,000 copies of *The Alexander* magazine each month, exclusive picture advertising, all 400,000 of the 1928 *Best Monthly* sales may secure, thousands of world-famous stunts, display advertisements in national aviation magazines and direct mail advertising. In addition there is the support and good will of a sister

organization, the Alexander Film Co., which has one hundred salesmen, 10,000 customers and contracts with 3,000 motion picture theatre men and operators.

In two short years the Alexander Aircraft Co. has reached a production of 20 ships per week, appeared 20 distributors with 75 dealers and has 175 orders on hand.

As Eaglerock distributor or dealer becomes the owner of a prosperous business. We help him to make money — INSIST that he be successful. We require none of our representatives because we do mean for them.

ATTRACTIVE DEALER FRANCHISES MAY STILL BE OPEN IN YOUR TERRITORY

*Write or Wire for Particulars*



ALEXANDER INDUSTRIES BLDG., RM. 403, DENVER, COLORADO







# FLOCO

## AVIATION ENGINES

Floco A-3-B Basic 7 Cyl. Radial Air  
Cooled Aviation Motor, 120 H. P.  
For particulars write Floco E. Olin  
Inc., Inc., 1336 West Normandie  
Street, Los Angeles, California



The new Floco Aviation Motor is the result of nine years of constructive engineering development. It has been built to meet the demand of the commercial field, for a motor of efficient and modern design, capable of developing power with the smooth flexibility of highest type motor, yet able to operate on the most economical fuels, and at a price which will make its value prominent in the commercial field. The Floco Motor has many exclusive features, as follows:

Comprising seven basic items, which maintain the same rugged construction of engine components, proved aluminum casting base on Cyl. blocks, can rotate in rubber arms, relieving torsion of all side thrust, push and bending and all arm rotate on rear side of motor, reducing wind resistance to minimum. The Floco specifications are: No. of Cyl. 7 — Bore, 4 1/2 in. — Stroke, 5 1/2 in. — Displacement, 412-15 cubic in. — Standard H. P., 120 at 1800 R.P.M. — Weight, without fuel, 450 lbs. — Max. O. D., 45 1/2 in. — Max. Length, 32 in. — Gas Consumption, 60 gal. per hr., 8.5 — Oil Consumption, 2.5 gal. per hour, 35 — Magnets, Scintilla — Carburetor, Stromberg. The Floco Motor is the Air Wing the Rich Motor is the Highway—Safe, Fast, Powerful, Reliable and Inexpensive.

# FLOCO



The Oldest American Aeronautical Magazine

Vol. XXV

MARCH 5, 1928

No. 10

### Why Stop Him?

WHEN COL. Charles A. Lindbergh returned from his history making flight to Europe the non-flyer public landed him in the shoes and in the same seat he expressed the sentiment that he could fly flying wings, and "and on his laurels." Not knowing Col. Lindbergh and not being able to understand what ACTUAL FLYING means in his life the "well meaning" non-flyer expressed their opinion when he made great loss of the entire country. After that sentimental American trip and although planes were passed upon him by the entire population westerners as did prevalent they heard from all sides with respect. He is a wonder, but that next water hop is to be dangerous, "and" He is the one of them all, who should quit now, flying over those jungles is too late.

And now that he has made that "dangerous water hop" and has been over the "evil jungles", and successfully completed an aerial feat that will go down in history as second only to the New York to Paris flight, member of the House of Representatives makes the motion that Congress pass a resolution urging Col. Lindbergh to stop flying and "devote his life to helping aviation."

Subsequently that honorable member of the House is seen in his desire to safeguard Colonel Lindbergh's view. And undoubtedly he finally believes that Col. Lindbergh could do much for aviation if granted more alone. There is no reason to believe that this is so, but it should be borne in mind that to Colonel Lindbergh aviation means ACTUAL FLYING. He believes in flying as he believes in nothing else, and for him to stop going aloft would be a direct contradiction of his belief.

Colonel Lindbergh IN and BAS BEEN "devoting his life to degrading aviation". And what is more, he is degrading aviation as it should be developed. He has the facts he has demonstrated the possibilities of the plane he has proved that flying is not something that is of some in the future but that is HERE TODAY. He has shown that thorough preparation and sound advice while in flight, reduce the danger element to zero.

It was to say that neither Congressional nor public action will cause Colonel Lindbergh to refrain from aviation. The air is too dangerous ground and he will not stop on flying as long as he is able to handle a job. And as he and all the others every on speaking of flying the "well meaning" ones will probably come to realize that they had been entirely mistaken in previous impressions.

### Airplane Advertising

THE CONTINUED and almost daily increasing amount of publicity that is being given to the airplane by the publishers of all types of periodicals, is creating a most satisfying effect upon the sales barometer of plane manufacturers. Firms that a year and one half ago were struggling hard to keep their heads above water, now are working their plants to capacity in order to fill plane contracts. Others have gone through reorganization and are ordering into regular production, and numerous new companies have established a firm financial foot hold within the last six months.

However, in the midst of this sales boom it should be remembered that good things do not last forever and that gradually the public will become accustomed to the sight of the airplane. There will be considerably less front page space devoted to aerial accomplishments, and spectacular performances will become part and parcel of several sales features. The stage of all-around or general utility, servicing facilities, maintenance and housing requirements, etc., will be equally important as regards getting the customer's signature on the dotted line.

To successfully present these various features to the buying public, other than by word of mouth, will require the services of an agency that, or groups of individuals well versed in the art of correct advertising. Men who have the ability to profitably analyze sales territories, plan and arrange advertising campaigns, handle publicity, write impressive copy, sales letters, pamphlets and take care of the various details that all tend to ward the establishing of a high sales level. There is the possibility that a man qualified to do this work may be found within the organization. If so then the particular company will be that much better off, but if not, then the company should seek him elsewhere.

Some plane manufacturers, particularly those who are more technical than business, may be of the belief that such an addition to the payroll, as the cost of an advertising manager or an advertising agency, is an unnecessary expense. That is far from correct. As an industry progresses competitive increases and the manufacture of airplanes or anything else, who continuously and correctly presents his sales to prospective purchasers will reap a reward far far greater than he who sits back and relies on an indifferent publicity.

In conclusion it is admitted that spectacular aerial accomplishments will always have a certain sales lure, but similar to the case of the automobile then will be with more profitable if made the subject of progressive advertising campaigns conducted by those experienced at that time of work.



Side quarter view of the International F-18

## The International F-18

A Closed Cabin Five Passenger Single Bay Biplane Powered With a Wright Whirlwind Engine

THE INTERNATIONAL Aircraft Corp., that recently moved from Long Beach, Calif., to Cincinnati, O., is preparing to manufacture, on a production basis, the International F-18, a Wright Whirlwind powered biplane of wood construction. The F-18 is a single bay biplane with an integral center fuselage and normal tail surfaces, except for the rudder which has a straight trailing edge. The fuselage tapers to a point at the tail, with the rudder entirely above it. The plane has a very clean appearance which is perhaps due to the maximum of external bracing and the divided type of landing gear. The base of the fuselage breaks only by the opening for the pilot's cockpit in the passenger area carried on in the fuselage. The F-18 is designed to carry six people. Recently, carrying 1640 lb., which is greater than the weight of the plane empty, it was flown from Long Beach, Calif., to Cincinnati, O., at an average speed of close to 100 m.p.h.

### Dual Side by Side Control

Perhaps one of the most interesting departures from conventional practice in the control system. The pilot's cockpit on the nose is fitted with dual side by side control. It is provided with two sets of rudder bars and side bar control stick. This system has been tried in other planes before and has proven practical. Due to the straight edge of the fuselage the cockpit opening and wind shield also have straight lines and therefore lend themselves to economical production. In front of the control cockpit in the closed passenger cabin having a capacity of 66 cu ft. It is 6 ft long, 4 ft 2 in

wide and 4 ft 5 in high. Seats for five people are provided. At the rear is a single wide seat extending the width of the cabin. In front of this are two single seats, making room for five passengers. The cabin is upholstered in red leather and the walls are lined with balsam wood. It is so that the cabin is very quiet and that with the engine fitted side by side concentration can be carried on at normal level. The rudder bar is carried below the fuselage and control stick, which gives some rudding effect.

The fuselage is tapered in section with eight square bar braces extending back to the tail skin. The lines of the



Showing the construction of an International F-18 fuselage

are reinforced, tapering to a point by an additional fitting fastened to the web of the longerons. Fastenings covering up of balsam plywood which takes part of the loading and integral plywood bulkheads across the fuselage thus give a sort of semi-monocoque construction. There are no end or cross members strutting the cabin. Steel and aluminum members carry the main loads through the fuselage. The International Aircraft Corp. has been using the type of construction for some time and it is claimed that it is easier to repair than any other type. Though there are no doubts to wood construction it must be admitted that in general it might for a plane of this type in any low, say only 1000 lb. empty.

### Pilot Has Good Forward Vision

The wing outline is of single bay design with a very wide base section giving the pilot good vision forward. The upper wing leading consists of the N type struts and conventional lift and landing wires. The upper wing is flat across its width while the lower wing has a slight dihedral. The N and struts are similar to that employed on International plane in the past. Six spars of Haskella and spruce are used with ribs having a plywood web lightened by circular holes. The usual type of spruce spar straps are employed for supporting the web and taking part of the load. To counter the aerol action at the leading edge of the wing it is covered with plywood on the upper surface back as far as the main spar. At each side of the cabin on the lower wing is a wide plywood walk ways. Drag bracing is of steel ties between the spars and of conventional diagonal wires over the drag bars. Both steel and duralumin fittings are used. They are treated with lacquer before assembly to make them impervious to the weather. Before covering all walk ways are sprayed with water proofing.

There are four altimeters, set in from the wing tip on both upper and lower wings. They are attached by three rubber



Interior view of the passenger cabin showing the complete control system

on two longerons. Two spar construction is employed on both bar and S beams. The altimeter ribs are under a base of the wing having plywood web lightened by round holes. To distribute the loading the control rib is reinforced with six extra lengths by the altimeter control beam. On each side of the control rib there is a steel wire running the whole length of the fuselage. Each rib is braced to the longitudinal bulkheads which makes for a very rigid structure. The tail surfaces are of similar construction except that the leading edge is reinforced by plywood. A welded steel tube

rudder is used. The vertical tail surfaces are quite conventional in shape, being in the form of a triangle with the straight trailing edge skewed at right angles to the water line of the fuselage. The rudder does not project beyond the end of the fuselage as is usual practice but is entirely above it. It is of the balanced type. Though the horizontal tail surfaces are conventional in shape they are not quite like,



Front quarter view of the International F-18 in a flying position

being below the upper longerons. Both horizontal stabilizer and vertical fin are adjustable. The stabilizer can be adjusted in flight by a control on the cockpit while the fin is adjustable on the ground. In this way the balance of the plane can be adjusted to meet different load conditions.

The landing gear is of the divided type employing an shock absorber. Each wheel is in the form of a tripod with two of the members attached to the center of the fuselage at the bottom with the third member, which carries the shock absorber unit, extending to one of the lower longerons. Brakes are supplied on standard equipment.

The high speed with full load of the F-18 is 100 m.p.h. with a landing speed of 40 m.p.h. It might be well at this point to quote H. A. Spence of the International Aircraft Corp. "Our flying time from Long Beach, Calif., to Dallas, Tex., was 22 hr. 20 min. Considering this plane weighs only 1640 lb. empty and making landings at two fields above 3000 ft. altitudes, carrying more than its own weight (1640 lb.) will give some idea of its performance. We landed at two fields 1/2 mi. long and took off successfully both times with full load."

The manufacturer's specifications for the F-18 are as follows:

Span	37 ft
Chord	5 ft 3 in
Arm	260 sq. ft.
Length	27 ft 6 in
Height	16 ft 5 in
Weight empty	1600 lb.
Disposable load	1440 lb.
Total load	3040 lb.
Fuel capacity	185 gal
Range	1000 mi.
High speed	120 m.p.h.
Cruising speed	80 m.p.h.
Landing speed	40 m.p.h.
Climb	1500 ft. per min.
Steepest climb	16,000 ft.

The F-18 was designed by Edwin M. Fish, who has been in the industry since 1908. Many of his planes have established records on the west coast. It is understood that the International Aircraft Corp. has orders on hand for over 50 planes and production will soon be underway at the new

Continued on page 596

# The Floco Aviation Engine

## Production Announcement Made of New 150 Hp. Radial

**AFTER** MORE than two years of careful research and experimental work spent in developing a high grade airplane power plant of moderate cost, announcement of production schedules and distribution plans for "Floco" engine engines has just been made in Los Angeles, Calif., by Frank L. Odenbreit and associates.

Although Floco engines are not making their debut in Southern California as a production item, they have been made gradually from the experimental class. They have undergone extensive tests under the most rigorous conditions of varying altitude during the past three years, and are now claimed to have been developed to a point of perfection that qualifies them as exceptionally dependable power plants for medium commercial and pleasure planes up to four place design.

"High quality construction of moderate cost was our major objective in designing and building Floco engines, and to have achieved it," said Odenbreit.

"A number of new features of mechanical design and special construction features of the Floco, will no doubt be of interest to the technical aviation."

"The Floco A-1 R is a seven cylinder, radial, semi-enclosed engine that develops 150 hp at 1800 rpm. It is



The Floco engine developed 150 hp at 1800 rpm.

equipped with compensating rocker levers that maintain plane tappet clearance regardless of temperature. Pressed aluminum cooling fins surround each cylinder barrel. Cast aluminum has been installed in the valve area to displace side thrust. The patented bearings and other accessories are mounted on the rear of the engine to reduce wind resistance. It is a



clean cut, sturdy power plant, weighing 430 lb without its propeller hub. It has a dry weight and 30% oil stroke is 6.125 in. is displacement. The average produce output, however is 8.6 gal. per hr. and the lubrication design permits maximum efficiency so that only 35 gal. of oil per hr. is used as an average.

"Our patterns and tools have been carefully designed, the machinery is in operation and from March 1st to June 1st our production schedule calls for ten engines a month. By May 1st we will ship the production up to 25 engines a month, and on Aug. 1st we will go to 50 engines a month."

The Floco organization is composed of a group of men who have achieved more than ordinary prominence by demonstrating their ability to protect fields of endeavor. Most of them have been active in aviation and manufacturing often in Southern California for more than ten years.

### Corporation Was Organized in 1926

Mr. Odenbreit, who is president and general manager of the company, organized the present corporation in 1926. In addition to managing manufacturing plants for the passenger plane, he has been constantly active in research work in connection with the development of aviation aircraft of the design of new type aircraft.

Thomas M. Barnhart, director of sales, was identified with the Oil Supply and Equipment Industry for more than ten years before joining the Floco organization, and has had an enviable reputation as a sales engineer.

V. C. Alexander, veteran pilot in charge of testing and demonstrations, has spent more than six years as a Ray and commercial engineer. His activities have taken him to all parts of the United States.

Before accepting plans for scheduled production and distribution of Floco Aviation Engines, Mr. Odenbreit said he was sure that a comprehensive survey of the American aircraft market to determine the most type of engine for which the greatest demand is being created.

They found that for both general commercial business and private operation a moderate power plant of from two to four place design, powered with comparatively small engine that deliver maximum power in efficiency, is favored by the

Continued on page 384

# Lima, Peru, to Para, Brazil

## Inauguration of Air Line Between Lima and Iquitos, Peru, is First Step in South American Trans-Continental Route

**THE FIRST** step in the establishment of a trans-continental air route between Lima, Peru, on the west coast and Para, Brazil, on the east coast of South America, has been made in the inauguration of an air line between Lima and Iquitos, Peru, by the Peruvian Naval Air Service. Following the first official reports of the success of the Peruvian venture, the Brazilian Government has proposed to augment this service by means of airplanes which will make route from Iquitos, Peru, to Leticia, Manaus, and Thore, Para, Brazil, a distance of 2500 mi. or 38 hr. This will make the first South American trans-continental route using the distance of 3100 mi. from Lima, Peru, to Para, Brazil, in about 30 flying hours.

In this manner the whole trip across the continent of South America will be shortened to four or five days in place of months required at present.

During 1927, Comdr. R. H. Green, Director of the Peruvian Naval Air Service, organized the Peruvian Flying Service of purchased from the Keystone Aircraft Corp. of Bristol, N. H., airplanes of the "Pioneer" type powered with a single light 14-cylinder engine, to be used in the 500 mi. trans-continental service.

The inauguration flight was made by Comandante Green of the 1st Squadron in the Keystone Pioneer on Jan. 11 on two planes to Iquitos. The first stop was made at San Fernando where a well equipped airport had been established. Thence the route was continued to the city of Manaus on the Uruguay River of which point a second stop for both land and airplane had been established. Com-



Map showing of the proposed South American trans-continental air route between Lima, Peru and Para, Brazil.

mander Green reported that twenty airplanes had been ordered at Manaus. Here the first changed their Keystone airplanes into airplanes by substituting gasoline for fuel.

The flight continued up the Uruguay River to Iquitos, which is the modern terminus of the air line. The route from Iquitos has been made into a modern airport with hangars, water stops and a staff of 30 men.

At the completion of the flight, Comandante Green reported to the Peruvian Government that the maps of the territory



Leaving the first plane at Iquitos.

which they traversed were almost useless and contained no mention of many of the lakes, mountains and rivers which they crossed.

This regular aerial service linking Lima on the western coast with Iquitos on the extreme eastern border, has at last opened up a hitherto vast and isolated region lying to the east of the Andes Mountains and through Peru into direct contact with the rest of the world.

This Iquitos region, rich in minerals, silk, and rubber products has heretofore been one of the most inaccessible points in the whole of South America. Lying 600 mi. from Lima, Peru, and 2500 mi. from Para, Brazil, it has offered only two ways of approach. The first route has been via Brazil where a journey almost across the entire continent of South America via the Amazon is necessitated before reaching Iquitos.

Many days are required for the trip and the service is far from regular. The other route from Lima to Iquitos is through only 600 mi. presents almost insurmountable barriers and takes the traveler from 21 to 28 days to complete the trip. Presently the mode of transportation is neither the most rapid nor the most comfortable. Often reaching altitudes as high as 15,000 ft., the road mountains are in sharp contrast to the hot tropical climate of the lowlands, only to meet all the traveler's powers of resistance to such sudden change.

At Tarma, near the river head of the Urubamba, the highway is forced to change from made to an Indian dugout canal and several days are consumed in negotiating the treacherous waters of the Amazonian tributary before reaching Pucallpa, Brazil. From there on the region is low and swampy. Clouds of mosquitoes, grass holes, and out of the head of the main stream, carrying their deadly message—a warning to

Continued on page 382



Front quarter view of the four place Cessna monoplane

## Cessna Airplanes

Cessna Aircraft Co. of Wichita, Kan., Now Producing Two, Three and Four Place Commercial Monoplanes

THE CESSNA AIRCRAFT Co. of Wichita, Kan., is producing what is believed to be some of the fastest commercial planes for their power in the United States. At present it is making two, three and four place models. The models are the two, three and four place models. The four place plane is powered with either a 120 hp. Ryan Standard or Wright Whirlwind engine. The four place Whirlwind model is stated by the manufacturer to have a high speed of 150 m.p.h. with a landing speed of 45 m.p.h. giving a speed range of 105 m.p.h. The 120 hp. Ryan Standard model, when carrying five people, has a high speed of 135 m.p.h. and a cruising speed of 120 m.p.h. With the 120 hp. Ryan Standard model carrying three people it is stated to have a high speed



Testing the wing of the Cessna with 30,000 lb. of sand and the wire. A true weight of 25,000 lb.

of 135 m.p.h. and to have a cruising speed of 120 m.p.h. All of the models are also except for the landing gear and the power plant. They are all high wing, full-on, silver monoplane with plywood covered wings and solid metal fuselage. The pilot's cockpit is behind the engine and below the leading edge of the wing with the passengers behind the pilot and under the wing. Due to the absence of external bracing the plane has very clean lines with the pilot's cockpit fitted in with a seat of maple skin. This is transparent and with windows at the side of the fuselage allows ample vision in all directions. The plane has a payload capacity of 400 lb. (including pilot) to 600 lb., depending on the power plant and in the same way its total weight from 1900 lb. to 2400 lb. All of the models except the four powered with the Wright Whirlwind engine have the same empty weight, namely 1500 lb. The Whirlwind model weighs 1250 lb. empty.

The internal structure of the Cessna monoplane, especially the wing, is very interesting. Similar to most modern aircraft monoplane wings the wing layers in both root and thickness. It is stated by the manufacturer that the wing has been taken very carefully into consideration during its design with the loads upon the wing, so that the number of square feet is in exact accordance with the structural strength of the beams. These beams are built into a box section of straight, ground square with the top and bottom flange made up of a number of laminations. These flanges are built up

# Regarding the Mechanics

Why the Aeronautical Mechanics Association of America Was First Organized and Why it Deserves Recognition

By JOHN C. SMITHOWSKI

Secretary, The Aeronautical Mechanics Assn. of America

ON MARCH 25, 1927, the pioneer mechanics of Garden City, New York, and New York vicinity, held an afternoon meeting to the representing longer at Garden City. The Aeronautical Mechanics Association of America was duly formed for the benefit of the aeronautical mechanic and aviation in general. It was decided that one large organization covering the entire country would gain recognition throughout the aeronautical world. The new mechanics have since called wonderfully well and continue to do so in surprising numbers. As the present time, so, as the membership increases in the various states, our branches are formed accordingly.

Rules were made governing the membership of our organization. It was decided to have two classes, Senior Mechanics and Junior Mechanics. The Senior members are the governing members and must hold the Department of Commerce mechanic's license and also pass the required examination regulations. No junior member can become an officer of the Association but has all other rights. All officers must be Senior Mechanics.

The Aero Mechanics Association has expanded to rapidly but we are already considered the "Voice of the Aero Mechanic."

Thus, of course, please all concerned as it is our aim to represent the mechanic of all conferences where aircraft laws and regulations are being discussed and to be of assistance in all times in helping him gain his pay.

All mechanics who have been in the game for any length of time realize the need for such an organization. The new mechanic of America today needs this association more than any other country on earth. No one has ever stepped forward to champion the cause of the new mechanic or to offer suggestions for his benefit. He has always been taken as a matter of course and considered the lowest of workers. No one has ever said that his work is and always will be of the highest quality. He must spend years gaining his experience. Besides being a highly skilled mechanic he must be trustworthy and reliable to the smallest detail. He must be as perfect in his work as it is possible to be.

### Overcrowded With Would-Be Mechanics

Yet, he has been shamefully ignored upon. Would-be mechanics are waiting to succeed who have no more idea what it is all about than a student on his first ride. Glorified mechanics and pilots do jobs on aircraft that only a skilled man should handle. The plane is overcrowded with such help. A majority of those are working for practically nothing just to learn the trade and possibly get a bit of flying time. We have a large number of mechanics and mechanics are being trained by experienced workers. Our constant endeavor why operators will permit a plane costing thousands of dollars to be put into the hands of green help when a slight overnight will cause a mishap. This continues to happen time and time again.

A first class mechanic often has as many as eight or more students, apprentices and helpers to check up on. This, in our opinion, is entirely out of proportion. Our mechanics should not have more than one to three helpers to take care of and he would have plenty of work at that. We all realize that it is necessary to have experienced help to give these fellows vital jobs at an early stage is entirely out of order.

Each apprentice mechanic or student pilot should be given some license and test before being permitted to work on maintenance work. We must be more careful of the type and intelligence of mechanics for it is essential to have only trustworthy and reliable men on the air fields. He must be brought to realize the experience of his work and a check of his experience can be had before he is issued a mechanic's license.

Contrary to what is generally thought, this Association is NOT connected with any labor union nor does it intend to affiliate at any future time. We wish to cooperate with the manufacturers, operators, pilots, mechanics and any person

### New Shoes



After aerial maneuvers with Curtiss "Horch" equipped with this as its primary landing gear and was held mainly at Camp David, Garden City, New York, by Army personnel. The Curtiss "Horch" was the first of the new type of aircraft used to provide a practical test of the mobility of present planes under severe climatic conditions. Photo shows mechanics adjusting the side in a block.

Continued on page 381

Continued on page 380

# Air Associates, Inc.

Company Formed to Render Service to the Industry and the Public  
Boosts Business With "Life-Size" Window Displays

WITH THE idea of serving all who are interested in aviation, an organization was formed a short time ago by Harry B. Page of New York and incorporated in New York State. This company is now actively engaged in business at 40th St. and Fifth Ave., New York City, under the name of "Air Associates, Inc." Here the products and services of practically every manufacturer and operating branch of aviation are displayed, either "life-size" or in miniature, and the authoritative facts about flying are kept tabulated and ready to answer the rapidly growing public demand for information.

Bestial results of the operation of Air Associates during the past year have been very favorable. Twenty-four manufacturers and operators have placed their products on exhibition



Window display of Air Associates, Inc., showing the various products of the aviation industry.

or illustrated their services. Refs have ranged from pure curios to an airport site. The assembly grows because which represents the sales of airplanes, accessories, paraphernalia, etc.—has quadrupled at the end of three months.

One interesting fact (with reference to this increase of interest) is the large list of aviation books and publications. Operators look upon this great demand for information about aviation from a sincere intention of truly but business in aircraft products.

The directors of Air Associates, Inc., did not enter upon this task of creating an aviation headquarters without months of experiment and observation. Previous engineers, outstanding in the various branches of the profession, were affiliated. The methods and needs of commercial aviation were studied. Financial allowances were made for the necessary, more reasonable in presenting aviation in no non-to-be form to a comparatively un-informed public. A working library of instructional and reliable publications was obtained, and personnel, but important relations were established with the manufacturers.

One of the advertising displays recently put on at 40th

Fifth Avenue show room was the Wright J-5 "Whirlwind" engine, mounted on the front window with sections of its construction cut away so that 44th Avenue traffic could see the way and how of this modern air-cooled power plant. It was exhibited that during this display more than 4,000 people a day stopped and viewed the engine.

Another exhibit constituted one of the outstanding phases of advertising in aviation merchandising. This was the display of Pioneer instruments including: among the famous Keith Indicator company. Three types of compasses, the simple compass of light and engine instruments, ranging and landing lights, even the portable landing beam, was set on a ground of red velvet beneath stroboscopic photographs. Other well-known exhibitors have been Curtiss Aeroplane & Motor Co., William E. Arlman, contractor of airports, Dushinsky, Duane Co., publisher, Popular Aviation, Colonial Air Transport and American Express.

Every day, scores of people ask to be put on Air Associates mailing list. "Send me the latest data on landing lights and beacons," they say. "The interested in flying here." "How can I look passages from here to Omaha?" "Have you any aerial photographs of Mississippi?" "My son wants to fly. Where can he be taught flying under proper conditions?" And so on and on. The questions are endless, but at the same time, they are surprisingly intelligent. Answers are given in non-technical language and are designed to create demands and result in sales.

A distinguished service is offered in engineering counsel. Members of the staff include Professor Alexander Klumbe, head of the Engineering School of Aeronautics at New York University; C. Fayette Taylor, assistant professor of aeronautics at Massachusetts Institute of Technology; Kenneth M. Lane, chief plane engineer of the Wright Aeronautical Corporation; and Amos B. Black, air transport consultant, who is now chief engineer of the Langley Corporation for airports and airplanes.

Air Associates, Inc., is headed by Harry B. Page. Joseph B. Taylor, Jr., formerly Navy test pilot, is vice president; Raymond Bessner, Navy test pilot and recently production, is general manager; and the Wright Aeronautical Corporation, a licensee. The company's main sales include William E. Arlman, Aeronautics graduate and reserve flier, and Alex Davenport, Russian aviator and linguist.

## Ryan-Siemens Waco 10 is Issued Airworthiness Certificate No. 26

ANNOUNCEMENT HAS been made by the Federal Aviation Administration, that the Ryan-Siemens Waco 10 plane provided with a new engine 122 hp. Ryan-Siemens radial air-cooled engine has been issued airworthiness type certificate No. 26 by the Department of Commerce.

## Radio Control Station Will Guide Planes on Key West-Havana Line

FOR SAFETY of flight between Key West and Havana, the Assistant Secretary of Commerce for Aeronautics, William F. MacDonogh, Jr., has approved the erection of a radio control station at Key West, the Department of Commerce announced.

This station will be the first of a number of radio control stations to be installed and operated by the survey director of the Aeronautics Service. The radio control station will provide for exchange of weather information between terminal airports, radio telephone communication to airplanes in flight, and radio direction for guidance and navigation of planes.

Two radio stations one-half mile apart are planned, one being a radio beacon operated by direct control for the guidance of aircraft and controlled from the main station where the radio operator stands his watch. Before the flight the radio operator communicates with the Cuban airport to ascertain weather and landing conditions, and in the event of stormy weather, steps in the vicinity of the route may be closed upon for minor repairs. This information is telephoned to the airport and posted on the weather bulletin board for use of pilots. As soon as the airplane departs the time of departure, identification of the plane, number and names of passengers, quantity of mail and express, and other information is transmitted by radio to the Cuban airport.

### Follows Route by Radio Communication

Thereafter the radio operator follows the passage of the plane over the route by radio telephone communication and receives word of the safe arrival of the airplane at its destination. In cases of emergency the exact difficulty, time and location will enable the radio operator to communicate the facts to nearby ships.

The radio beacons will be of the equidistant range type, having two crossed beam antennas and transmitting an alternating signal. The pilot receives Morse signals for letter "K" when he is north of his course, letter "A" when north of his course, and letter "T", which is forward by the equidistant of his course, and letter "T", which is forward by the equidistant of his course.

Daily air mail and passenger service is now in operation by the Pan American Airways, using its original Fokker planes carrying 32 passengers and two pilots. The airplanes leave Marathon Field, Key West, at 9 A.M. for Havana and return at 5:15 P.M. The flight covers about 130 mi. of water over the Florida Straits, through which the gulf stream passes. Customary waves are encountered at high altitudes. The radio control station to guide and follow the airplanes at night will inaugurate the air navigation facilities that are provided for safety under the Air Commerce Act of 1930.

## Gough Aircraft Co. is Formed for Production of Aircraft Engines

IT WAS recently announced by the Gough Aircraft Co. of Oklahoma City, Okla., that it would soon be in production on a 250 hp. engine that is stated to have an extremely low weight per horsepower. The company was recently incorporated in Oklahoma City by Frank Gough, Raymond Foster, and Bob Bartholomew, all of that city. Patents are now pending and it is understood that a factory will be built on land owned by Mr. Gough near the Tulsa Flying School, two miles northwest of the city.

## The AIRSEDAN



## Safety

Built under Department of Commerce Certificate of Airworthiness No. 12, Approved for 1000 lbs. payload

## INSURANCE

Full coverage will be granted for all passengers, because they cannot interfere with the controls.

## SPECIFICATIONS

Seating Capacity	pilot and 4 passengers
Wing Area	2100 sq. ft.
Wing Span	320 sq. ft.
Height	42 ft.
High Speed (sea level)	135 M.P.H.
Engine	Wright Whirlwind

## EQUIPMENT

Self Starter, Metal Propeller, Compass, Air Speed Indicator, Navigation Lights, Tachometer, Altimeter, Clock, Fire Extinguisher, Fuel, Oil Pressure and Oil Temperature Gauges, Air Crops Throttle, Brakes, and Fuel Valve, Exhaust Manifold with Muffler and Cabin Heater, Metal Mail or Baggage Compartment.

## The Ideal Commercial Plane

Price \$12,500 Flyaway  
Completely equipped

## BUHL AIRCRAFT CO.

Maryville, Michigan



Truscon Hangar for the Ford-Hill Aviation Manufacturing Corp., Farmingdale, L. I.

## AIRPLANE HANGARS

Truscon Airplane Hangars are permanent and fireproof. They are assembled from standardized units which can be combined into buildings of any desired length and width. Being laid out in clear spans, their unobstructed floor space assures at-most freedom in handling ships.

## Large Sliding Doors

opening the full width of the building, simplify the storing of planes. We furnish Steel Doors for any requirements.

TRUSCON STEEL COMPANY  
BOSTON, MASS.

Manufacturers of Engineers  
MANUFACTURERS AND CONTRACTORS IN SPECIALTY

## TRUSCON BUILDINGS

for all airport requirements  
and for every need of the Air-  
plane industry.

Send information and quotation on request.



Truscon Steel Company

Manufacturers of Engineers

MANUFACTURERS AND CONTRACTORS IN SPECIALTY

Please quote price on Hangar as follows: Length, Width, Height

1 Please send Descriptive Folder

Name

Address

## Five Records are Set by Hinkler In 15 1/2 Day London-Australia Hop

**HAROLD "HERB" HINKLER**, Australian star, broke three records when he landed his *Avro-Arrow* plane at Port Darwin, Australia, on Feb. 20, thus accomplishing a 15 1/2 day solo flight to that continent from Croydon Airport, London. Hinkler's journey was the longest point to point flight, the longest in a light plane, and the shortest staged flying time—124 hrs.—between England and Australia. The first non-stop flight between London and Rome and the fastest time for an England-India journey were also made on route.

Hinkler's plane is a standard model *Avro-Arrow* powered by a sleek Cirrus engine developing 80 hp. The *Avro-Arrow* is a two place craft with 26 ft. wing spread, the second smallest of Hinkler's plane being used for gas tank space. The airplane has a cruising speed of between 90 and 120 m.p.h. It will fly about 15,000 in England.

Figuring according to the great circle course followed in the record journey, 12,000 mi. were covered, Hinkler averaging approximately 90 m.p.h. for the distance. The log of the flight, giving place and date of arrival, and approximate straight line distances between the points follows:

Date	Place	Distance
Feb. 7	Rome	1000 mi.
9	Malta	400
9	Tripoli	600
10	Rosetta	600
11	Suez	600
13	Jeddah	700
14	Karachi	600
15	Canton	600
16	Calcutta	600
17	Korumb	700
18	Bombay	600
19	Singapore	700
20	Batavia	600
21	Java	600
22	Port Darwin	675

The most trying part of the journey was found to be the 1,900 mi. hop across the Tropic Sea from Rome, British Isles, India. This seemingly long jump for the light plane was made easily owing to the presence of a heavy sea storm. An aerial accident, however, threatened the crew. This was when Hinkler took off from the wet Singapore field barely clearing some chimneys at the end of the runway.

Noted by the British as a flight comparable to Lindbergh's, it is expected that the Australian pilot will receive a knighthood such as has been awarded Coburn, Keith Smith, Rose, and others who have been pioneers of British aerodromes.

## New England Aviation Exposition To be Held in Boston Oct. 1 to 6

**BOSTON** WILL hold its third New England Aviation Exposition since the World War in the Mechanics Building of that city Oct. 1 to 6. It was recently announced. At this show an open charge will be made for the exhibition of airplanes, airplane engines, parachutes, etc., according to report.

Daniel Rockford, aviation editor of the Boston Evening Transcript, has been named director of the exhibition. Rockford managed the two previous shows, the first of which took place in the Mechanics Building in December 1925.

The second Boston Radio Exposition will be staged during the same week, and it has been anticipated that some which will give admission to both, though the show will be in separate halls.

## Establishes Airport Engineering Service Company in Los Angeles

A COMPLETE airport engineering service has been established at Los Angeles by John C. Hanson, a young and energetic who has spent eight years on highway and airplane projects in the State of Colorado, according to reports from the West Coast. After a year of intensive study of aeronautical problems pertinent to such a service, the organization has taken office in the Western College of Aeronautics building.

Extensive contacts with flying clubs and chambers of commerce in the various communities have already been made with the result that several airport expansion projects are pending. The company hopes to have this new branch of engineering well established within a year.

## Advertising Man Uses Airplane To Call on Distant Customers

WHAT is believed to be one of the first business trips to be made by a newspaper advertising representative using an airplane was made last month by Vernon L. Oels of the New York Times, Aviation Department. He flew from New York to Kansas City stopping at Chicago where he visited several aviation associates in that city.

Mr. Oels left New York Feb. 28 on a Douglas D-2 mail plane, which is operated by the National Air Transport, Inc. He arrived in Chicago early in the evening making the run in record time. Part of the trip was made at night and the effect of the moonlight on Lake Michigan was something that Mr. Oels said will never be forgot-

ten. After spending a short time in Chicago Mr. Oels boarded another D-2 plane, a Travel Air monoplane, and flew to Kansas City where he had several calls to make.

The entire trip to New York was made over the same route and Mr. Oels returned to the entire trip on a Travel Air monoplane, pointing out that he had saved considerable time and traveled with even a greater amount of comfort than if he had used some other means of transportation.

The only delay in the entire trip was when the plane was forced down at Madison, Ill., for ice accumulation on the wings, but this was only a temporary condition and the plane soon proceeded on to its destination.

## Oxweld Acetylene Co. has New Truck for Welding Equipment

A NEW type of two-wheel truck carrying oxy-acetylene equipment was recently placed on the market by the Oxweld Acetylene Co. of New York City. By increasing the size of the wheels, it is claimed that the truck is much easier to handle. This particular truck has 24 in. diameter wheels fitted with 3 by 3/4 in. grooved tires with a cast iron hub. The hub is bored to fit the solid rubber wheel axle and a grease cup is provided. When carrying welding equipment over land, this lubrication is of particular importance, especially when the truck may be loaded long distances at fairly high speeds behind a motor car.

As regards the ease of the walking floor of an airplane factory where 24 in. wheels are not required, 24 in. wheels may be used instead by changing the position of the axle to the lower end of hub which are already drilled in the frame. The same frame and axle may be used with other size wheels. No grease cups are on the smaller wheels.

New Consolidated Carrier as previously equipped.



## "No trouble ... and no waste because we use HASKELITE"

THIS is the condensed statement of the Consolidated Aircraft Corporation in regard to HASKELITE used in their Toney and Husky models.

Over 200 planes of the Toney and Husky types have been used by the U. S. Army and Navy for training purposes all over the country. Yet no plywood trouble of any kind has ever been reported. And there has never

been a single bit of waste from spalling in the fuselage.

New Consolidated uses HASKELITE in the new Courier biplane, a comfortable but no training plane.

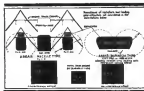
The use of HASKELITE for 90% of the plywood in American aircraft is increasing rapidly that business owners where are just as enthusiastic as Consolidated. Write us for information.

HASKELITE MANUFACTURING CORPORATION  
115 West Washington Street, Chicago, Illinois

Pacific Coast Representatives:  
CALIFORNIA PANEL & VENEER COMPANY  
501 S. Alameda Street, Los Angeles, California



# CONTROL



THE following test pilots have contributed to the demonstration of satisfactory control and advancement in design of the Burnelli airfoil fuselage multiple engine type through the operation of the giant RB1 and 2. Bert Acosta, Clarence Coombs, Randolph Page, Lloyd Bertrand, Edward Stinson, Howard Rinschart, George Pond, Romer Weyant, Homer Berry and Earl White.

## Some Advantages of the

## BURNELLI TYPE

- Accommodate multiple engine compartment
- Extensive reduction of load resistance
- Reduced turning moment on one engine
- Fuselage life reduces landing speed
- Increased capacity of the fuselage
- Structural efficiency and simplicity
- Practical Landing Gear Retraction

## Specialized Airport Service Being Offered by American Airports, Inc.

IN ORDER that all those contemplating the establishment of an airport may be able to obtain the necessary information, advice, assistance, etc., the American Airports Corp., of 227 Fifth Ave., New York City, has been organized, under the presidency of Col. Sheldon Blake. Its purpose is to supply the special knowledge, organizing ability, supervisory and management needed for the development of an airport from its first inception to its final stage of permanent, and a profitable operation.

"When forming this organization," said Colonel Blake, "we realized that local individuals interested in an airport would demand that any organization too purporting to furnish such aid be one in which they could rely. They would demand that it be reliable, not only from the standpoint of technical knowledge but also that it represent sound business ability and capacity in the field of organization and management."

"Therefore we have among our directors Maj. Gen. John F. O'Brien, noted not only for his legal ability but also as a leader in the business of air transport; George Warner of St. Louis and Webster, a firm of long experience in the field of developing public utilities; Senator James W. Wadsworth and Gov. George O'Neil; John J. Connelley, public affairs, William B. Mayo, chief engineer of the Ford Motor Co., and J. Lee de Kooning, president of the American Hotel Corp., and vice president of the United States Corp."

The American Airports Corp. does not intend to build or own airports, but to supply every expert assistance needed by those who wish to build and own airports. The field falls into three divisions: 1. Planning and organization; 2. Designing and Supervision; 3. Unified Management of Airports.

As an illustration of how the American Airports Corp. operates let it be assumed that a certain city is desirous of establishing an airport. The officials of that city get in touch with American Airports Corp. The engineers of the corporation have already made extensive researches of material and local airport potentialities and possibilities. They say that they are prepared at once to tell the town from that city, if it is one where it is advisable to start operations for a non-commercial airport project. If they say no, and the city officials wish to engage the corporation, the latter is prepared to

1. Survey the locality for an adequate airport site. 2. Determine whether the airport project should be under municipal or private control and operation. 3. Prepare a budget for the development of the airport by yearly stages. 4. Advise in financing the acquisition of land when undertaken by private enterprise.

In the field of designing and supervision of construction,



Col. Sheldon Blake

March 5, 1938

AVIATION

549

that is, when city officials are ready to actually build their airport, the American Airports Corp., is prepared to:

1. Make preliminary and working drawings.
2. Prepare specifications for civil and mechanical engineering.
3. Draft proposals and contracts.
4. Supervise construction of the field, lighting and radio equipment, fire protection, hangars, auxiliary shops, administration building, waiting rooms, hotels, etc.
5. Coordinate with city engineers with reference to zoning and city planning.

Even after the airport is completed the American Airports Corp. still continues to be of assistance as it will endeavor to lease, under suitable management, stages of airports, with a view to obtaining the following advantages:

1. Ability to make more profitable contracts with air transport companies by offering standardized facilities, regulations and services.
2. Opportunity to lease concessions for hotel, restaurant, garage and other rights for a varied system of airports.
3. Attract air commerce and industries to the local airport.

## Board of Directors of Western Air Express Increased to Nine

AN INCREASE of from six to nine in the number of directors of the Western Air Express, Inc., which has held between Salt Lake City and San Antonio, was made at the recent annual stockholders' meeting. The new directors are Thomas F. Kenna of Salt Lake and John S. Deane and Robert B. Hale, both of San Francisco. The six members serving under the organization of the company two years ago were re-elected. They are Harry M. Hershman, Maj. C. G. Mowley, Byron L. Grever, William May Garland, Harry Chandler, and James A. Tolbert.

## Edo Pontoons and the TRAVEL AIR

THE alpha ship or open cockpit, CX-3 equipped or Wheel wheel, all of them you can use with Edo floats. No gear work, no superimposing. Standardized all metal floats were developed in fit to all types of commercial airplanes.

When we say "developed" we do not mean that only their performance is good. No. All aspects of commercial work were considered in development of Edo floats. Simple installation, easy towing, quick take-off, strength, durability, convenience of passengers—all these properties are equally important as a commercial

floats are used.

It is no wonder, then, that Edo production is doubled since last year. The question is, will doubled production be sufficient to take care of every customer, demand for floats? We thought so in January, but we begin to doubt now. As the Sun sets



warmer, orders come more and more often. Do not postpone your ordering if you want to be certain of your delivery.

EDC

EDO AIRCRAFT CORPORATION  
COLLEGE PARK, L. I., N. Y.

## Two Powerful Beacons are Planned By Adair Co. of California

TWO 36 in. 35,000,000 candlepower aeromarine beacons are to be installed, in California by the Standard Oil Co. of that state, according to William P. MacCracken, assistant secretary of aeromarine for aeromarine. One is to be erected on Mount Diablo, a prominent landmark lying 25 mi. southeast of San Francisco. Since this peak has an altitude approaching 4,000 ft., clear atmosphere is assumed at this height. The Mount Diablo beacon is to rotate so times a minute. Moreover, "Standard Diablo" rotates at 50 ft. capital letters will be carried on the cliff to supplement the beacon's light. Under normal conditions, it is declared that this new beacon will be visible for 100 mi.

## To Place 15 Boeing Mail Planes In Western Mail Route Service

FIFTEEN NEW Boeing mail planes with passenger cabin accommodations are shortly to be placed in service on Western Mail routes, according to the recent announcement of W. G. Morrow, vice president of the Boeing Air Transport, Inc. The new planes will be powered with the Pratt & Whitney 525 hp. Hornet engines, it was stated.

It is planned to place 12 of these planes with the Boeing line on the Salt Lake-Cheyenne division of the San Francisco-Chicago route. The 525 hp. planes will replace 425 hp. mail on this division. These others will replace planes of 325 hp. on the San Francisco-Berkeley division of the Pacific Air Transport line, in which the Boeing company recently purchased controlling interest.

227 PARK AVENUE, NEW YORK CITY

STANDARDIZED ALL METAL SEAPLANE FLOATS











## An unbroken Aviation record



On through the night the engine runs. . . Blackness, wit and ruse. . . At last dawn. . . Gray millions of a far-off coast. . . Triumph. . . All distance beneath.

However efficient such records, they are bound to be surpassed. For, one mark stands in aviation history — the mark of quality in Gordon Aero-Tops.

Gordon Aero-Tops are made from the finest materials obtainable. Expertly finished by hand. They include the finest, most durable and all leather flying helmets, gloves and masks. When you want the finest in aviation clothing, ask for Gordon Aero-Tops. If your regular store cannot supply you, write to us.

GORDON & FERGUSON, Inc., St. Paul, Minn.

## THE AEROPLANE

Edited by C. G. Gery

The Leading European Aircraft Paper

Publishes every week the essential news of the developments of flying all over the World.

Illustrates and describes regularly the latest aircraft and engines of all nations,—with the fullest possible details and specifications.

American aeronautical people who want to know what is doing in Europe should subscribe to THE AEROPLANE.

Subscription for one year \$8.50, post free from "THE AEROPLANE" Office, 175 Piccadilly, London, W.1., England.

## The Floco Aviation Engine

Continued from page 578

majority. They also discovered that economy of operation and high quality at reasonable cost are essential requirements of the present aircraft engine market.

Some of the tests they have conducted to determine how well the Floco meets these requirements include more than 100 hr. of block tests at varying speeds, and more than 200 hr. in the air at varying altitudes and under all kinds of weather and atmospheric conditions.

Pilot Alexander took a Floco powered plane all over Southwestern California. He climbed to an altitude of 16,000 ft.; he flew for three hr. at 12,000 ft., putting the plane and engine through the whole gamut of tests; and he took a steady out-



Rear view of the Floco engine showing the injection system and the carburetor.

over the ocean, returned, climbed over the mountains, and flew low over the desert where the air was blustering hot. He reported that the air cooling system worked perfectly and the engine never overheated. Carrying a useful load of two passengers, pilot, and baggage, Alexander brought his Floco engine plane from Yucca to Los Angeles, a distance of about 70 mi., in 35 min. He says that the Floco will carry the average three place plane at a speed of from 120 to 150 m.p.h. Another spectacular demonstration showed the climbing power of the Floco, when he took off with an 800 lb. pay load and climbed at the rate of 900 f.p.m.

In connection with their distribution plans, Mr. Oberkott and his competent distribution of practical experience are to be established in all territories throughout the country, along with complete facilities for service.

A feature of the service department will be a research division which will be maintained to supply general aviation information regarding the Floco, engine, plane, and in general, to answer all inquiries as aviation activities.

A special service plane is also to be maintained in constant operation to render fast and to Floco distributors and their customers.

The initial demonstration tour for Floco is now being programmed. It will cover the Pacific Coast, with Pilot Alex-

March 5, 1928

ander and Sales Director Hardisty visiting each airport to show all who are interested in aviation just what is expected of a Floco Aviation Engine in actual operation.

Specifications of the F14C0 aviation engine:

Net hp. (24 in. diameter) . . . . .	7
Net hp. (24 in. diameter) . . . . .	450
Stroke, in. . . . .	8 1/2
Displacement, cu. in. . . . .	82.10
Normal hp. (24 in. diameter) . . . . .	100 at 1800 r.p.m.
Wt. without belt . . . . .	150 lb.
Wt. with belt . . . . .	155 lb.
Max. C. D. in. . . . .	6 1/2
Max. length, in. . . . .	30
Gasoline consumption, av. . . . .	8.6 gal. per hr.
Oil consumption, av. . . . .	35 gal. per hr.
Engine . . . . .	Aluminum
Carburetor . . . . .	Aluminum
Grass shipping wt. . . . .	350 lb. approximately
Packing case dimensions . . . . .	50 x 50 x 40 in.

## Raymond E. Dowd Now With Russell Mfg. Co. as Aeronautical Engineer

ANNOUNCEMENT was recently made of the appointment of Raymond E. Dowd as Aeronautical Department Engineer of the Russell Mfg. Co. of Middlebury, Conn., manufacturer of shock absorber and, elastic and non-elastic webbing, etc. Mr. Dowd will locate at the New York City branch office of the company.

Mr. Dowd has been actively interested in aviation since 1920. Early efforts started with model and glider development which resulted in efficiencies with several clubs organized for the purpose of promoting aeronautical science. Among these were the Aero Glider Club of New York, the Model Aero Club of Springfield, Mass., and the Aero Club of Utica, N. Y., he being president of the latter two clubs. Other connections have been with the Thomas Mote Aircraft Corp. of Utica, and the American South Magneto Corp. of Springfield.

It is the policy of the Russell Mfg. Co. to promote the use of shock absorber and particularly the new rubber Ramo-rag, which is standard equipment on the Fokker tri-engine transport plane, as well as other commercial craft. Mr. Dowd plans to cooperate directly with the airplane designers in working out landing gear problems.

## Marvin A. Northrop of Minneapolis Selected as American Eagle Agent

MARVIN A. NORTHROP of Minneapolis, who has been selling war surplus engines, planes, and propellers, as well as new production supplies for several years, has been selected by the American Eagle Aircraft Corp. of Kansas City as an American Eagle distributor. Northrop conducted a flying school and was in charge of the Robinson Airport near Minneapolis for many years.

C. R. Tarnett, advertising manager of the Leaf, Paper & Envelope, Inc., of Minneapolis, is prominently associated with this new enterprise. Leon De Long is chief pilot.

The inventory to be secured includes the eastern half of North and South Dakota, Minnesota, and Wisconsin with the exception of the immediate vicinity of Milwaukee. Foreign planes include a comprehensive scope of airplanes such as student instruction, air taxi, passenger type, and several photography. Sales will be offered on proposed air mail routes in this section, it is further stated.

AVIATION

595

## Belden Radio Shielded Wire

Is Used Extensively on Douglas, Curtis and Boeing Planes



### Constructional Features

1. Braided Tinned Copper Shielding.
2. Varnished Braid.
3. Varnished Conductor Tape.
4. Cable of Fine Tinned Copper Wire.

This wire complies exactly with Air Corps Specifications No. 10, as revised.

Belden Manufacturing Co. CHICAGO, ILL. Western Area Sales Office: New York

Specify Belden

This Belden Shielded Wire is used on all Army, Navy, and Air Corps aircraft and is the standard for all radio equipment.

At Your Service

AERO SUPPLY MFG. CO., INC.

Manufacturers and Distributors of

Airplane Accessories and Supplies

Call on us for anything We will help you

COLLEGE POINT. L. I. N. Y.

## Amateur Aviation Enthusiasts!

**REALIZE** your first ambition to obtain a real airplane to get technical, practical and ground instruction. We are offering a limited number of L.W.F. airplanes, in good condition, low motor, packing crates furnished, at \$2000.00. **Lib. Airport at Newark**

Wings, struts and tail surface with cables at \$150.00. Fuel gauges at \$10.00. Propellers for souvenirs (not serviceable) at \$3.00

Special rates to flying clubs

Immediate deliveries and airplanes can be made

**Aeroplane Sales & Service Corp.**

Office 207 Market Street, Newark, N. J., Room 1703

Motor Plant  
31 Camp Street  
Newark N. J.

Service by Operation  
Approved at Newark  
Newark, N. J.

## CURTISS-REED PROPELLERS

National Air Transport, operating the Air Mail and Express lines from New York to Chicago and Chicago to Dallas, writes:

"On the 15 Curtiss-Reed propellers which we now have, one has over 1,000 hours' service, one over 900 hours, one over 800 hours, two over 700 hours, and the remainder between 500 and 600 hours."

"We feel sure that all of them are good for 1,000 hours unless some difficulty should develop which we do not anticipate now."

**Two Types now available**

Type A—A solid forging of high efficiency and strength. Particularly desirable for motors of 200 H.P. or more.

Type B—A flat, solid, forged type, for intermediate motors. The most important asset propeller on the motor today, despite its efficiency and long life.

Write for Prices

**The Curtiss Aeroplane & Motor Co., Inc.**

Office: Garden City, N. Y.  
Factory: Garden City & Buffalo, N. Y.



## The International F-18

Continued from page 575

plant in Coonassac. It is located near London Airport and Watson Airport in three former government buildings of the Avrocan Nitrate Plant used during the war. Together with a concrete runway nearly a mile long and a flying field of 163 acres these three buildings make an ideal site for an airport today.

A short time ago the company was acquired by Comstock interests headed by Clarence E. Ogden of the Kodak Radio Corp., Arthur E. Wald, and H. G. Tinsley. The officers of the company now are Arthur E. Wald, president; Percy V. Ogden, vice president and general manager; Edwin M. Fisher, engineer, and H. A. Speers in general sales manager.

## Lieut. A. J. Williams Makes Three Outside Loops in Test Maneuvers

**THREE OUTSIDE** loops were recently successfully completed over the Annapolis Naval Air Station by Lieut. A. J. Williams, Navy speed flyer. The loops were made in two flights designed to ascertain the strength of airplanes under severe stress. A Curtiss combat biplane powered with a Pratt & Whitney Wasp engine was employed.

In a first attempt, Lieutenant Williams accomplished a single inverted outside loop. He flew along upright, gradually turned into a half roll, rolled his plane on its back, and then entered the expected outside loop. Another half roll and Lieutenant Williams landed.

Later, the Lieutenant made a downward outside loop—a complete fast previously accomplished by Lord James D'Almeida of the Army. This loop is entered by a nose dive approach. Lieutenant Williams, however, followed this outside turn with a half roll, upside down, inverted, and second upside outside loop that forming a figure eight. It is thought that this feat has never before been accomplished.

These tests were made on a 1,000 ft. range lying between the 2,000 and 3,000 ft. altitude. An inspection of the biplane following the flight failed to disclose any stress.

An accelerometer is to be used in further test flights, according to the Bureau of Aeronautics. This instrument will enable the plotting of data valuable in combat plane designing.

## Mills Field is Selected as Terminal On New San Francisco-Seattle Line

**MILLS FIELD**, San Francisco's municipal airport, has been selected as the northern terminal for the new San Francisco-Seattle passenger air line to be opened March 5 by the West Coast Air Transport Co., a subsidiary of Fairchild Stages. Each transpacific airplane powered with Pratt & Whitney Wasp in the nose and 125 hp. Ryan-Dorman engines on the wings will be used. Eight passengers and two pilots are carried on the planes.

The planes will leave Mills Field and San-Peak Field, the northern terminal airport at Seattle, each morning at 8 o'clock and arrive at their destination at 2:30 o'clock the same day, according to the schedule arranged. Stops will be made at Corvallis, Calif.; Medford, Ore.; and Portland, Ore. The fare per passenger one way has been put at \$45.

The West Coast Air Transport Co. plans to inaugurate a similar air service between San Francisco and Los Angeles shortly after the San Francisco-Seattle line begins operation.

## FOREIGN NEWS

By Special Arrangement with the Transportation Division Bureau of Foreign and Domestic Commerce

### Mark Exhibit is Feature of Ottawa Show

The exhibition of a de Havilland Hawk plane at the annual motor show recently held in Ottawa, Can., proved a big feature of the exhibition, hundreds of people waiting on the little planes before they went on to look over the other exhibits.

The display of the plane was arranged through the courtesy of the Department of National Defense which at the present time has the custody of 10 Hawks which are to be distributed among light airplane clubs throughout Canada this spring. The Ottawa Flying Club, Inc., secured permission from the government to show the plane as part of a publicity campaign to secure new members.

Wright Whorwell and Armstrong Siddeley engines were also exhibited. Metal propellers, airplane floats, and aerial photographs taken by the Topographical Survey and Air Force completed the aeronautical section of the show.

### First Japanese Passenger Service Begins

Imperial Japan is announced Japan's first airplane passenger service—a line connecting between Tokyo and Osaka recently opened by the Tokai Airline, one of the empire's new airlines. Three planes carrying four passengers each have been scheduled to make daily trips between the two cities, weather permitting.

The fare for the trip, which covers a distance of 160 mi., has been put at \$25 one way per passenger. The airline states, however, that the present actual cost to the company is \$40, the lower price being offered to encourage recreation in Japan.

### De de France to Carry Mail Plane

When the De de France sails from Havre on March 7 she will carry an airplane and outcrop for handling it on route, according to an announcement of the French Line. As part is approached on either side of the Atlantic, the plane is to be taken into the air with a small land in order to make a postal service to New York and Paris. Passengers will also be carried in urgent cases.

Clarence Chamberlain, Atlantic liner, proved the practicability of such service when he left the deck of the *Lerionette* late in 1927 to bring mail to land.

### Commission Fifth British Plane Carrier

Put into commission at Dartmouth, Eng., late in February, the British airplane carrier *Comet* is the 50th large vessel of her kind to be added to the fleet. Her sister ship the *Glorious*, now being completed, will bring the full complement to six.

Several flights of planes are accommodated by each of the ships. The total cost of construction and conversion into airplane carriers of the three cruisers built during the World War by Admiralty Fisher-Pearce, Comptroller, and Glorious has been set at \$60,000,000.

### Sets Record in London-Paris Flight

Setting a record for large planes, Capt. A. S. Wilkeson of the Imperial Airways recently flew a Handley-Page Jupiter air liner, weighing some tons, from London to Paris in 50 min. flying time. The average speed was 355 m.p.h.

The Handley-Page plane was powered by three Bristol Jupiter engines developing a total of 1,800 hp.



## WATER TIGHT!

**FULLY** and tightly enclosed, protected against the action of a brake efficiency, Bendix Water and Shock 2-disc Brake Blocks have added automatically an extra reliability of airplanes.

The brake and wheel are at sea water-tight so it is possible to make them.

Have no problems in all modified sizes.

1 fully guaranteed by patents and applications in U.S. and abroad

**BENDIX BRAKE COMPANY**  
General Offices and Plant, South Dear, Ind.  
Division of Bendix Corporation, Chicago

## BENDIX 4 BRAKES

FOR SAFETY

## A Record to be Proud of



There has never been a structural failure with an American Eagle

The American Eagle has never been defeated in any performance contest.

Send for this new booklet, it fully illustrates and describes this most wonderful performing, beautiful

## "Master of the Skies"

We want you to own an American Eagle because we know you will be proud of its amazing performance, superior safety and beauty as we are in the privilege of building it.

With COE Motor, Horvath Propeller, Bendix Aircraft Aluminum Cowlings are \$2315, Remotely City



**American Eagle Aircraft Corporation**

2800 East 12th Street  
Kansas City, Missouri





## Ireland "NEPTUNE" Amphibian

High Speed full load ..... 95 mph  
Landing Speed full load ..... 46 m.p.h.  
Pay Load ..... 750 Lbs.

Orders will be filled in sequence of receipt

Price \$14,600

**IRELAND AIRCRAFT, INC.**  
GARDEN CITY, N. Y.

### Where Conditions are Most Exactingly



Use  
Ferdinand  
Special  
Aviation  
Glass

Write for Booklet

**LW Ferdinand & Co.**  
222 Eastland Street, Boston, Mass.

## Seamless Steel Tubing

ROUND, STREAMLINE, ETC.

Produced in Specifications in  
**STRAIGHT CARBON  
NICKEL STEEL  
CHROME MOLYBDENUM**

Terrific in Abrasive Tubing—Manufacturers for 45 Years.

**SUMMERILL TUBING COMPANY**

BRIDGEPORT, MONTG. CO. (Philadelphia District) PA.

England Association of Aviation Societies at its recent Spring-field meeting.

Students there at Wickenburg field have been passing in time regularly during the winter months and several are about ready to take Federal tests. Wm. Sergeant, Federal aviation inspector for New England, was a recent visitor at the field and inspected the records at the New England Aircraft office.

### St. Louis, Mo.

By W. L. Alexander

Leander-St. Louis field, which recently formally became the St. Louis Municipal Airfield, is to be the headquarters of James L. Kinney and J. W. Kelly, Department of Commerce inspectors. From the field, they are to survey Iowa, Missouri, and Southern Illinois, inspecting planes, pilots and conditions, and otherwise cooperating in the enforcement of the Air Commerce act.

Kinney and Kelly arrived at the field from Chicago in the Fairchild airplane in which they will make all their trips over their territory. The plane, incidentally, is the plane flown by Philip R. Love over the route traversed by Colonel Leanderburg in his tour of the nation.

Richard Linn, another Department of Commerce inspector who has made frequent visits to the field, is now in work out of Kansas City. He has a Deth airplane equipped with a Whirling engine.

"Bob" Dempsey, flying a new Whorlwind Travel Air bi-plane, made the trip from Kansas City to St. Louis in 1 hour 45 min. recently, averaged about 100 m.p.h. for the 200 mi. trip. He was accompanied by Al Mangrum, with whom he left the Travel Air factory. The trip from Wichita to Kansas City was accomplished in 2 hours making a total of 2 to 45 min. from Wichita to Kansas City. The time here for the same journey is 34 hr.

Park department workers began recently to demolish a house and several sheds at the 70 acre tract north of the field which is to be redeveloped with the present field. Work is a slow motion grubbing and draining operation with logs and stumps for some feet in length, ready to be removed by a logging team to which pilots who are unable to push the land spots from the air.

Recently a flock of ducks congregated at about 200, settled on the eastern edge of the field for the night, apparently well satisfied that they had found a pond.

Dempsey reported that his plane made its over the wheel top in the ground of the new Kansas City Municipal Airport. He managed to get off again from Richards field, after the plane had been rolled to harder ground and landed at Secretary Field for service.

The flock of the long promised Curtiss Falcon with which the National Guard team is to be equipped, have arrived at the field. It was piloted by Capt. H. H. Young, instructor of the 25th Division Air Corps, who had called for it at Buffalo, N. Y. This plane is the latest model Army observation plane equipped with Liberty engine and capable of a high speed of 155 m.p.h.

### Rockford, Ill.

By Ned Schickler

Enlargement of Rockford Airport, located on the North Second St. state highway five miles north of the city, is contemplated under arrangements which are now being made with Fred Hildebrand, by the local chapter of summerers.

The plan includes the leasing of a strip of land adjoining the present field on the west. This is to give an L-shaped take-off north and south as well as east and west. The field is to be leveled, and additional hangars are to be erected this year.

Invited exhibitors for Illinois National Guard aviation of the 1928 Observation Squadron at Camp Grant also are planned this year. Maj. Gen. Ray D. Keith, commanding the

25th Division, has recommended that a suitable field in the east corner of the National Guard training enclosure be graded and made ready for use prior to the annual encampment here July 25 to Aug. 31.

Mayor Earl M. Allen, President Walter E. Barrett of the Chamber of Commerce and other guests were taken for rides in the monoplane by E. R. Campbell, president of the Campbell-Gibbons Aviation Co., who pointed out from the air suitable locations for landing fields and explained the advantages or disadvantages of each from an aviator's standpoint.

The Molins firm declared that the present Rockford Airport, with some widening, would be the most ideal location as it has clear approaches from the west and southwest, the direction of prevailing winds in this locality.

A landing of \$23,000 for a new strip flatter from Rockford to Rockford, Illinois, is being sought from local manufacturers by Bert Hensel, revenue land aviator. Hensel has charted a great route across that would carry him close to the Ames Co. field and which would make his longest water jump only 545 mi. He hopes to hop off in May or June, in a Stinson-Detwiler with Wright J-5 engine.

### Syracuse, N. Y.

By John S. Fenderson

Eddie Stinson, one of America's best known pilots and manufacturers of the Stinson-Detwiler planes, is believed to have established an unofficial world's record for a 500 mi. flight when he recently flew from Detroit to this city in exactly 2 hr. 37 min. Credit made by Syracuse newspapers as his time of departure from Detroit, recorded his landing only at just noon. He landed at the Municipal Airport here at 2:37 P.M.

Eddie was reluctant to discuss his remarkably fast time for the long flight. "A good wind helped a lot," he modestly remarked.

Stinson's visit to Syracuse was first to confer with members of the Mayor's Aviation Commission of this city on the best plan for the development of the municipal field and second to interview sales prospects.

Charles Lips, chairman of the Mayor's Commission, has expressed his intention of purchasing a Stinson-Detwiler monoplane as a result of Eddie's visit. The Detroit monoplane took many Americans on demonstration flights.

The Mayor's Commission has held its first meeting of the year. Mr. Lips was elected chairman, and John S. Fenderson was chosen secretary.

The fourth of the general school series of lectures on members of Syracuse chapter, National Aeronautics Association, has also been held. Charles Hildner, mechanical engineer, spoke as speaker.

A committee to determine advisability of establishing an air school in Syracuse was appointed by Gordon K. Hand, manager of the Municipal Airport and president of the N.A.A. The committee includes: Gordon Sayre, chairman; Clarence J. Forch, attorney; and Maj. Harry C. Dunston, adjutant of the Madison School.

Mayor Dunston recommended that a general school would probably be started at the Madison School for benefit of pilots who wish to learn something of the fundamentals of aviation.

### Garden City, L. I.

Interesting developments are in progress at Curtiss Field. A new building addition is being added to the field office. When finished, the active director will command about 100 ft. The new addition is to contain a reception room, a room for visiting pilots to store suitcases and flying suits, M. M. Mendel's private office, and also a small office for a stenographer.

Small offices in the west addition will be made into a letter drawing room. This will be welcome news to the women



After all, it's not what the advertisements say that makes airplane good — it's what they do after they are sold.

Travel Air performance has sold more Travel Air than our talk or advertising has.

Descriptive catalog on request.

**TRAVEL AIR MFG. CO., Inc.**  
FACTORY AND OFFICES: WICHITA, KANSAS  
Distributors in Many Cities



## SEAMLESS STEEL TUBING

All Aircraft Grades

Washington Stock for immediate shipment in any quantity.  
Mill shipments for substantial production requirements.

**SERVICE STEEL COMPANY**  
1415 Franklin St.  
DETROIT  
41 John St.  
CINCINNATI

## A flying-suit without an equal at twice its price

THE BECO winter flying-suit is unrivaled in quality and comfort. Send for descriptive folder.

**BELORE BECO, FURNISHED CO.**

Kalamazoo Uniform Co.  
KALAMAZOO, MICH.







## Nitrate Dope

25 gal. Case	\$9.75
50 gal. Case	\$18.50
100 gal. Case	\$36.00
25 gal. Case, 90% in 2 gal. Case	\$11.14
50 gal. Case, 90% in 2 gal. Case	\$21.14
100 gal. Case, 90% in 2 gal. Case	\$41.14
25 gal. Case, 90% in 2 gal. Case	\$11.14
50 gal. Case, 90% in 2 gal. Case	\$21.14
100 gal. Case, 90% in 2 gal. Case	\$41.14

## Shock Absorber Cord

AM Specification. Guaranteed not over 10 feet of 1/2 inch New Brunswick and 10 feet 3/4 inch New York.	\$10.00
100 feet of 1/2 inch New Brunswick and 10 feet 3/4 inch New York.	\$10.00
100 feet of 1/2 inch New Brunswick and 10 feet 3/4 inch New York.	\$10.00
100 feet of 1/2 inch New Brunswick and 10 feet 3/4 inch New York.	\$10.00
100 feet of 1/2 inch New Brunswick and 10 feet 3/4 inch New York.	\$10.00
100 feet of 1/2 inch New Brunswick and 10 feet 3/4 inch New York.	\$10.00
100 feet of 1/2 inch New Brunswick and 10 feet 3/4 inch New York.	\$10.00
100 feet of 1/2 inch New Brunswick and 10 feet 3/4 inch New York.	\$10.00

Manufactured by  
NICHOLAS-BEAZLEY  
AIRPLANE CO., Inc.  
111 North St. Newark, N. J.  
DET. Newark, N. J.

the field of all hours to service planes or turn on the flood lights for a night landing.  
A new shop and double hangar as well as rest rooms and enlarged offices are also on the A. A. Airways list of improvements recently completed.

It is intended to add a list of seven technical students in this school several hours from 200 to 300 ft. of space and are taking the course in order to qualify for transport licenses. There are 42 flying students now taking instruction.

Of approximately 300 passengers carried by L. A. Airways in 15 days, 624 were making their first flight.

### New Brunswick, N. J.

"Above the Clouds," an illustrated history by Louis Gander, Thomas J. Miller, retired officer formerly with the Douglas Aircraft and Los Angeles, was the subject of a banquet recently held in the local Elks Club by the Air Club of New Brunswick. Robert W. Johnson, mayor-elect and accomplished aviator, presided.

Commander Miller's lecture dealt with the dirigible field of aeronautics, particularly progress, and Navy aviation activities. He also went on to explain the construction of the present dirigibles as well as of the R-380, England's new giant. Three films of moving pictures followed the slides and depicted parachute jumping, types of naval aircraft in action, and various scenes on the airport nearest Longley.

Mayor John J. Morrison also spoke at the dinner. He pointed out that a good airport was as necessary to a city as a good dock and railway station, some transportation facilities are of prime importance to the active town.

The Air Club of New Brunswick, which is well into its second year, serves a pleasant evening. The efforts of the organization are under Gander, president; Alexander MacArthur, Jr., first vice president; Matthew J. Balot, second vice president; Frank H. Whelan, treasurer; and John Fuchs, secretary.

**Rose, Idaho**  
The Boise Flying Club, in order to raise money to buy a new control model airplane, has planned a series of benefit projects. These home talent productions will be held in the neighborhood of the local high school. Henry A. Hord is stage director.

The Boise Airport will have a complete system of lights for night take-offs and landings. If the report of Congressman Ben Cady goes proper action. The lighting according to Mr. Cady has been planned on the lines of those suggested by the Department of Commerce for night flying aids or lights on airports. Congressman Cady called in experts from the Department to get proper plans and correct figures. The cost of lighting the Boise airport will be \$10,000.

### Madison, Wis.

Rhoda Johnson, Helen Smith, and Wilbur Main Kimpton are planning to incorporate and maintain an air transport and passenger service at Jenerville, Wis. Mr. Johnson who is the owner of a Standard and holds a pilot's license, will probably act as chief pilot of the new organization. Fredrick, who is a friend of Col. Charles A. Lindbergh while he was a student at the University of Wisconsin, has purchased the former Main Presses No. 2, a West light, and is taking flying lessons from Howard A. Mory, chief pilot of the Royal Airways, Ltd.

### Denver, Colo.

Only High School in Northern California took delivery on an Englishman through J. L. Mayberry, distributor for the Alexander Aircraft Co. The plane is to be used in connection with a four year course in aeronautics. The new plane adds to the school's present equipment of several planes, engines, tools, and accessories.

## UNITED STATES AIR FORCES

### Gigantic Aerial Map Being Constructed

What is said to be the largest aerial map ever constructed in this country is being planned together at Los Angeles, Tex. The proposed photograph—1,200 square miles—will be of the Mexican border territory—were recently completed by Master Sgt. Carl Dillinger of the Army American Corps. Dillinger devoted five months to the work.

The finished map is to be used by the International Water Commission for determining treaties for several large irrigation and power projects which are being planned. Among them are the All-American Canal from Arizona to California, the Laguna Dam in Arizona, the Imperial Valley irrigation project, and the Boulder Canyon project.

A tripartite team, which grew deep suspicion was used in the photograph. Films are employed which take a series of pictures over a strip of territory six miles long by one and one-half miles wide.

### Navy Broadcasts Flying Weather Reports

Strong weather reports are now broadcast as an extended schedule by the Navy Department. Twice a day, at 8:15 A.M. and 8:35 P.M., the powerful station at Arlington, Va., sends out a bulletin prepared by the U. S. Weather Bureau which informs Army, Navy, Marine Corps, commercial airports, naval airships, carriers, and business organizations of the meteorological conditions pertinent to flying.

The bulletin broadcast is sent by three 75 watt stations throughout the country as well as from ships in the Western part of the Atlantic. The meteorological conditions are also re-broadcast by the R-380 Tower station in Paris. Reports from the Western Hemisphere are thus relayed to 22 European governments through a special radio system.

### Dirigible Flight Honors Pioneers

In celebration of the anniversary of the first practical balloon flight made by the Montgolfier brothers at Paris in 1783, the aircraft dirigible -4 recently flew to New York from the station at Larchmont, N. J. Louis, Raymond Tyler, now headed the ship in the flight which took it over the Statue of Liberty to drop a wreath of peace roses in memory of the pioneers.

Joseph and Stephen Montgolfier, French paper manufacturers, surprised the world when they made a bag, filled it with hot air from burning waste, and sent a cock, a sheep, and a duck aloft in a cage hung below their balloons. The animals were slightly worried.

### Many Apply for Naval Air Courses

Applications for enrollment numbering 2,000 have been received by the United States Naval Reserve recruiting headquarters at the Rockaway Point Naval Air Station. The first group of students is now receiving instruction and will return to the classes during summer time throughout the spring and summer. New applicants will follow when these men have completed the work.

At a recent meeting held on the U. S. S. Ellipse, anchored in the Hudson River off West 96th St., New York City, more 218 men were selected to take the aeronautical course.

### Awards Asked for Aviation Fliers

Louis, Lester J. Matfield and Albert F. Haggenberger, the first to fly from the Western Coast to the Hawaiian Islands, will receive the Congressional Medal of Honor for their flight if the bill recently introduced by Representative Chalmers of Massachusetts can pass. The two men were sailing for the awards were referred to the Military Committee of the House



## What Do You Know About Airplanes?

A FEW years ago you had to learn about aircraft from personal, often experience. They had no one to guide them—no one to point out mistakes when they were made—and therefore years were wasted, money was taken months now.

### Thorough-Practical Training

Today the American School of Aviation offers you those long years of experience and knowledge, which are so much in demand, in this new and fascinating Home Study Course in Practical Aviation which has been fully endorsed by prominent aviation authorities.

Write Today  
No matter whether you have worked with airplanes all your life or are just beginning in the industry you are in a position to use for a complete and detailed outline of the training and also your own and working from both "Opportunity in the Airplane Industry."

American School of Aviation  
Dep. 8243  
3091 Michigan Ave., CHICAGO, ILL.

## BAROGRAPHS

These barographs were the most and best in the world for measuring atmospheric pressure. They are of the highest accuracy and are in a perfect condition of service. They are the only barographs in the world which are of the highest accuracy and are in a perfect condition of service. They are the only barographs in the world which are of the highest accuracy and are in a perfect condition of service.

Thermo-Barographs  
Measuring altitudes from 1 to 16,000 ft. and also recording temperatures at the 4,000 ft. and 16,000 ft. altitudes. They are the only barographs in the world which are of the highest accuracy and are in a perfect condition of service.

Robert J. Patterson, Jr.  
1225 Broadway, New York City

PERRY-AUSTEN  
Acetate Nitrate  
Clear Pigmented  
DOPES  
PERRY-AUSTEN  
CLEAR ACETATE DOPES

The Lasting Undercoat  
The Best Finish  
Undercoat—For Clear Acetate  
Undercoat—For Pigmented Acetate  
Perry-Austen Mfg. Co., Staten Island, N. Y.  
Contractors to United States Government

## PLYWOOD

FOR  
Airplane Construction  
U. S. Army and Navy  
Specifications Grade A

ANY SIZE UP TO 16' 6" x 6' 6"

New Jersey Veneer Co.  
Paterson, N. J., U. S. A.  
Cable Address: Veneer, Paterson











## Largest and Finest Civilian Air School in the World!

The Marshall School now has more students enrolled, more instructors, more training planes and more equipment than any other civilian air school in America!

### Practical Training

Students are attending the Marshall School from practically every state in the Union — because here we qualify you for success!

You get practical experience on airplane wings, landings, engines, propellers, control surfaces and other parts, right under actual factory conditions with expert supervision.

You are taught aerial navigation, meteorology, aerodynamics, theory of anatomy, parachute work, airport operation and the other details you cannot afford to neglect.

### Actual Flying

And you get real flying instruction on modern airplanes — straight flying, aerobatics, emergency landings — practical training under nationally known pilots! When you leave the Marshall School you are ready to get a good job at a factory, an airport, become a dealer or distributor or go into one of the other dozens of branches of the business.

## Special Low Rates - NOW!

Don't make the mistake of choosing the wrong school! Your entire income will depend upon your training.

### Free Catalog Will Explain Everything!

Send 10 cents for the School Catalog that will explain you 1) airplane engineering — entirely all guaranteed. 2) in your guide to

success. Free or refund. Send the coupon and we have made the first money toward fees and property.

Take the short cut to success by coming to Marshall-ACFT! If you come at once you can still save nearly half on your income expenses. Check the this guide immediately ship your fee. Come at once or wait the one year!



**MARSHALL  
FLYING SCHOOL INC**

Affiliated with the Nichols-Bonley Airline Co., Inc.  
116 North St. Marshall, Missouri

MARSHALL FLYING SCHOOL, Inc.  
116 North St. Marshall, Mo.

Please send me your Big New Catalog and Special Terms Offer.

Name \_\_\_\_\_  
Address \_\_\_\_\_



## "The Amphibian Made Practical"

THE greatest tribute to the success of the Loening development of Amphibians is the wide spread recognition and activity based on the usefulness and practicability of this class of airplane.

The Loening organization with its persistent and painstaking effort

has proved to the world the soundness of this development.

As a result the Loening Amphibian has now passed the experimental stage and represents a finished product — with over two million miles of flying behind it and in wide use in all quarters of the globe.

LOENING AERONAUTICAL ENGINEERING CORPORATION  
2187 STREET AND EAST RIVER, NEW YORK CITY

Builders of

## THE LOENING AMPHIBIAN

A Patented and Proprietary Article.

# HONORING AN ENGINE DESIGNER.

An airplane is like a skater on this ice. Incessant movement is the secret of flight. We lost sight of this elementary principle in celebrating the magnificent exploits of LINDBERGH, CHAMBERLIN, BYRD, MARY, of the fact that without an engine so constructed and yet so trustworthy that it would run hour after hour across the Atlantic and Pacific would never have been crossed by air. In awarding the Collier Trophy to CHARLES L. LAWRENCE for his brilliant development of the air-cooled engine, the National Aeronautic Association does honor to the engineer who made possible the great American flights of 1927.

"Whoever heard of PAUL REVERE's horse?" is LAWRENCE's ready explanation of the credit that he has received from the general public. Those who know the general psychology of aviation will not accept the story that he had to wait on the invention of the internal combustion engine. When LANGLEY, the father of aerodynamics, was at last ready to build a man-carrying machine he was baffled for a time by the inability of manufacturers to supply him with an engine sufficiently light and powerful. In the end he and his assistant, CHARLES M. MANLY, had to design the engine themselves. Even the first practical flying machine, our best designer, until LAWRENCE gave us the now famous "Whitcomb" wind tunnel, the best aviation engineers were of European conception.

Like all machines that serve his purpose well, LAWRENCE's engine are the products of a fine technical imagination and patient experimentation. Behind the triumphs behind LINDBERGH's remarkable exploits in the Latin-American skies, ten years would be fatal. He more than made good the "Whitcomb" wind tunnel, practically aided by the Engineering Division of the United States Army as Commander J. E. WATSON and TOR. LAWRENCE restored the station, favor, made it possible for the United States to build fighting, observation and bombing planes which are in some respects superior to those of Europe and, above all, gave to commercial aviation an impetus which has led to the early establishment of passenger-carrying air lines throughout the United States.



THE universal acceptance of Wright Air-cooled Engines as a final expression in aeronautical motor efficiency is most substantially portrayed in the clipping reproduced herewith.

There is no surer barometer of public opinion than the editorial columns of a great newspaper.

WRIGHT AERONAUTICAL CORPORATION  
Paterson, New Jersey U. S. A.

# W R I G H T